

WHAT IS CLAIMED IS:

1. An apparatus for driving a liquid crystal display including a plurality of pixels connected to gate lines and data lines and arranged in a matrix, the apparatus comprising:
 - 5 a gray voltage generator generating a plurality of gray voltages;
 - a data driver selecting data voltages corresponding to image data from the gray voltages and applying the data voltages to the pixels; and
 - a signal controller transmitting the image data for the data driver and generating and outputting control signals for controlling the image data to the data
 - 10 driver,wherein the data voltages include first data voltages for odd pixels and second data voltages for an even pixels, the image data include the first image data for the first data voltages and the second image data for the second data voltages, the data driver applies the first data voltages and the second voltages to the pixels in turn for a
- 15 horizontal period, the control signals include an inversion signal for reversing the polarity of the first and the second data voltages and a common voltage applied to the pixels having a magnitude varying dependent on the polarity of the data voltages, and the signal controller changes a state of the inversion signal between an end of the transmission of the first image data and a start of the transmission of the second image
- 20 data and the polarity of the common voltage between an end of the application of the data voltages for a row and a start of the application of the data voltages for a next row.
2. The apparatus of claim 1, wherein a phase of the common voltage is delayed by half of a horizontal period with respect to a phase of the inversion signal.
3. The apparatus of claim 1, wherein a period of the inversion signal and
- 25 a period of the common voltage are equal to two horizontal periods.
4. A liquid crystal display comprising:
 - a plurality of pixels arranged in a matrix; /
 - a plurality of odd and even data lines and gate lines transferring signals to the pixels;
 - 30 a gray voltage generator generating a plurality of gray voltages;

a data driver selecting data voltages corresponding to image data from the gray voltages and applying the data voltages to the pixels; and

a transmission gate unit including a plurality of odd switching elements connected to the odd data lines and a plurality of even switching element connected to
5 the even data lines, and connected to the data driver; and

a signal controller transmitting the image data to the data driver and generating and outputting control signals for controlling the image data to the data driver and the transmission gate unit,

wherein the odd switching elements and the even switching elements are
10 connected to each other in pairs, the data voltages include first data voltages for odd pixels and second data voltages for an even pixels, the image data include the first image data for the first data voltages and the second image data for the second data voltages, the data driver applies the first data voltages and the second voltages to the pixels in turn for a horizontal period, the signal controller controls the transmission
15 gate unit to alternately turn on the odd switching elements and the even switching elements such that the first data voltages and the second data voltages are applied to the corresponding pixels, the control signals include an inversion signal for reversing the polarity of the first and the second data voltages and a common voltage applied to the pixels having a magnitude varying dependent on the polarity of the data voltages,
20 and the signal controller changes a state of the inversion signal between an end of the transmission of the first image data and a start of the transmission of the second image data and the polarity of the common voltage between an end of the application of the data voltages for a row and a start of the application of the data voltages for a next row.

5. The liquid crystal display of claim 4, wherein a phase of the common
25 voltage is delayed by half of a horizontal period with respect to a phase of the inversion signal.

6. The liquid crystal display of claim 4, wherein a period of the inversion signal and a period of the common voltage are equal to two horizontal periods.

7. The liquid crystal display of claim 6, wherein the control signals
30 further includes a first switching driving signal driving the odd switching elements and a second switching driving signal driving the even switching elements, and the

signal controller alternately applies the first switching driving signal and the second driving signal to the odd switching elements and the even switching elements.

8. A liquid crystal display comprising: /

5 a plurality of odd and even pixels and arranged in a matrix, each pixel including a switching element;

a plurality of first gate lines connected to the odd pixels;

a plurality of second gate lines connected to the even pixels;

a plurality of data lines connected to the pixels;

a gray voltage generator generating a plurality of gray voltages;

10 a first gate driver connected to the first gate lines to drive the switching elements of the odd pixels;

a second gate driver connected to the second gate lines to drive the switching elements of the even pixels;

15 a data driver selecting data voltages corresponding to image data from the gray voltages and applying the data voltages to the pixels; and

a signal controller transmitting the image data to the data driver and generating and outputting control signals for controlling the image data to the data driver,

20 wherein the data voltages include first data voltages for odd pixels and second data voltages for an even pixels, the image data include the first image data for the first data voltages and the second image data for the second data voltages, each pair of the first and the second gate lines connected to the odd and even pixels in a row are alternately supplied with a gate-on voltage from the first and the second gate drivers, respectively, to turn on the switching elements connected thereto for one
25 horizontal period, the data driver outputs the first voltages for the odd pixels during a period that the first switching elements are turned on and outputs the second voltages for the even pixels during a period that the second switching elements are turned on, the control signals include an inversion signal for reversing the polarity of the first and the second data voltages and a common voltage applied to the pixels having a
30 magnitude varying dependent on the polarity of the data voltages, and the signal controller changes a state of the inversion signal between an end of the transmission of

the first image data and a start of the transmission of the second image data and the polarity of the common voltage between an end of the application of the data voltages for a row and a start of the application of the data voltages for a next row.

9. The liquid crystal display of claim 8, wherein a phase of the common
5 voltage is delayed by half of a horizontal period with respect to a phase of the inversion signal.

10. The liquid crystal display of claim 8, wherein a period of the inversion signal and a period of the common voltage are equal to two horizontal periods.

11. The liquid crystal display of claim 8, wherein the odd pixels and the
10 even pixels are connected to the data lines in pairs.

12. A method of driving the liquid crystal display including a plurality of odd and even pixels arranged in a matrix, the method comprising:

supplying image data for the odd pixels, an inversion signal, and a common
voltage;

15 reversing a state of the inversion signal;
supplying image data for the even pixels; and
reversing a state of the common voltage.